



Frequency Response Analyzer

Model 2700 Z-Pulse

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1 General Description

Model 2700 embeds the synergistic combination of impedance spectroscopy (Z) and high-speed pulse or waveform generation (pulse) paving the way to new and exciting possibilities in electrochemistry. AMEL's Frequency Response Analyzer pushes the researcher further in the investigation and characterization of supercapacitors and rechargeable batteries, electrochemical conversion for energy storage, corrosion and corrosion protection studies, deposition of high-performances metal films, characterization of semiconductors and quality controls.



2 Metrological Properties

2.1 Arbitrary Waveform Generator

2.1.1 Sine

Frequency Range	1 μ Hz to 10MHz
Amplitude	20Vpp @1kHz
Noise	$\pm 0,1$ dB if < 100kHz $\pm 0,15$ dB if < 5MHz $\pm 0,3$ dB if \leq 10MHz

2.1.2 Square

Frequency Range	1 μ Hz to 10MHz
Rise & fall time	8ns
Overshoot	< 1%
Duty Cycle	0,01% to 99,99%
Asymmetry	< 0% of the period + 5ns @ 50% duty cycle
Jitter (RMS)	< 50 ps

2.1.3 Triangle

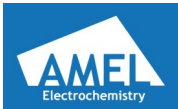
Frequency Range	1 μ Hz to 10MHz
Symmetry	0% to 100% in 0,1% steps

2.1.4 Pulse

Period	100ns to 1000s
Pulse width	15ns to 1000s
Edge Time	20ns to 1s
Overshoot	< 1%
Jitter (RMS)	< 50ps

2.1.5 Arbitrary

Frequency Range	1 μ Hz to 10MHz
Sampling Rate	50MS/s
DAC resolution	14bit
Output range	± 12 V at frequency < 10MHz
DC offset range	± 12 V at open circuit
Resolution	12 BIT
Accuracy	0,4% of range



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2.2 Power Supply, Connections and Dimensions

Computer Connection	Universal Serial Bus (USB)
Voltage Mains	12 to 24V DC, 1A max
External Power	Model 2560 8-channel Power Supply Single Power Supply (provided if Model 2560 is not present)
Dimensions (L x W x H)	200 x 215 x 80mm
Weight	1,5kg

3 Spare Parts

- 191/SUPS24 Power supply for single unit
- 191/BNCFRA Set of 3 BNC cables for connection with potentiostats
- 191/DUMMY Dummy cell for Frequency Response Analyzer